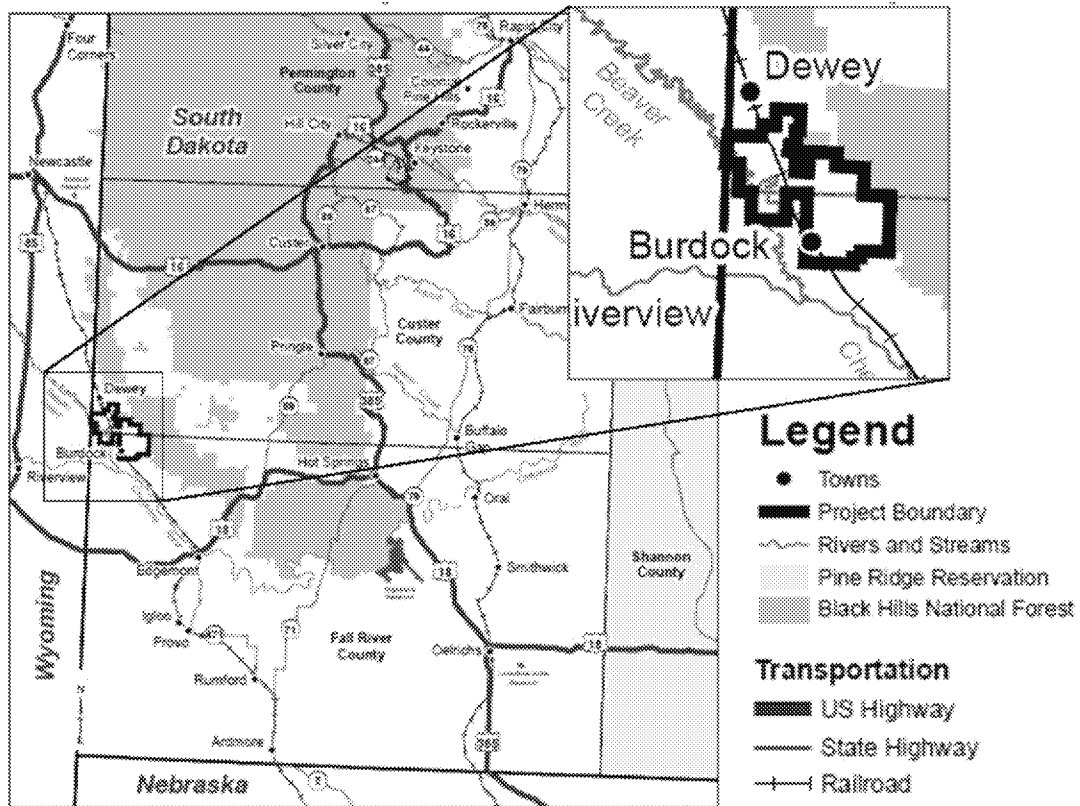


EPA Region 8 Underground Injection Control Program

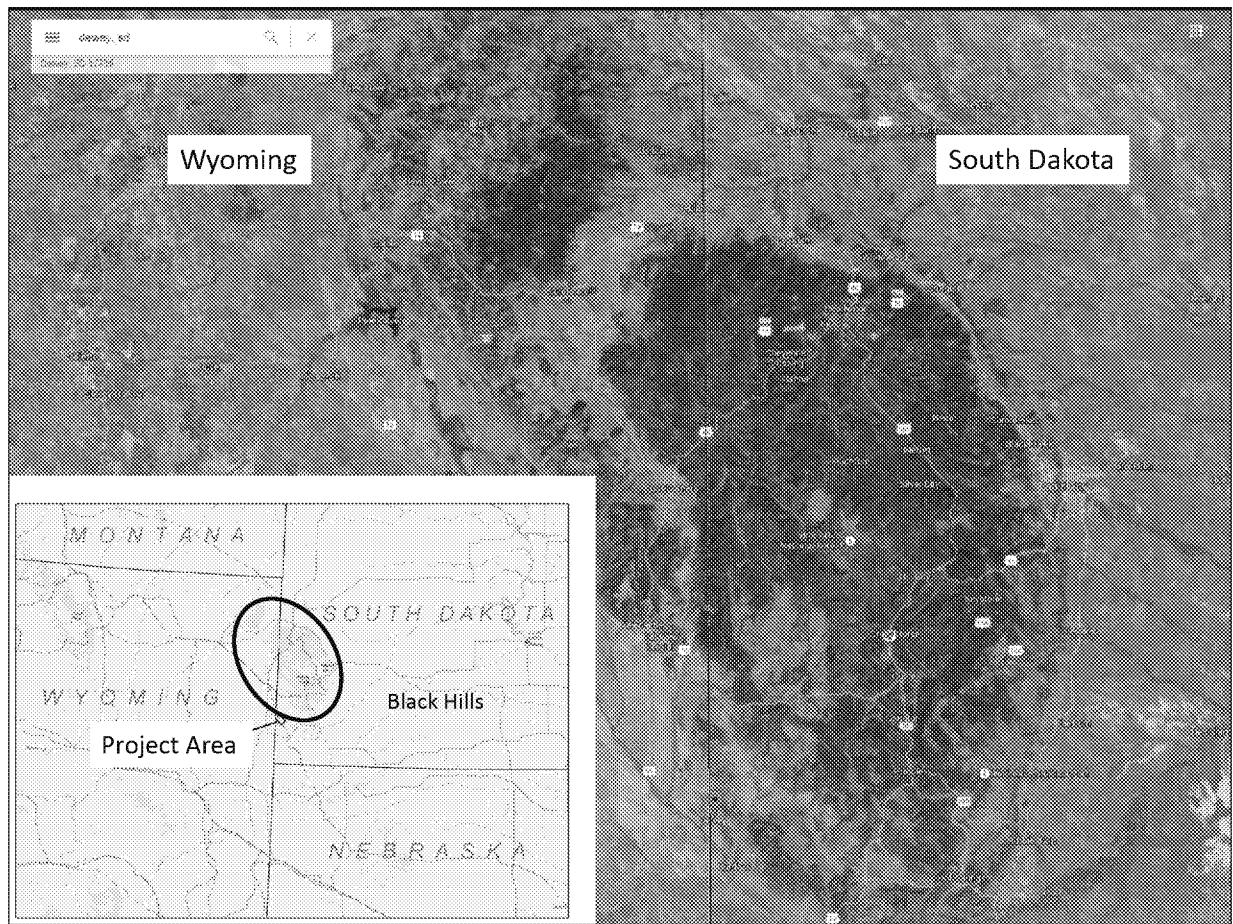
**Applications for the Proposed
Dewey Burdock Uranium
In-Situ Recovery Site
near Edgemont, South Dakota**

**Valois Shea, MS, PG
EPA Region 8
Underground Injection Control Program**

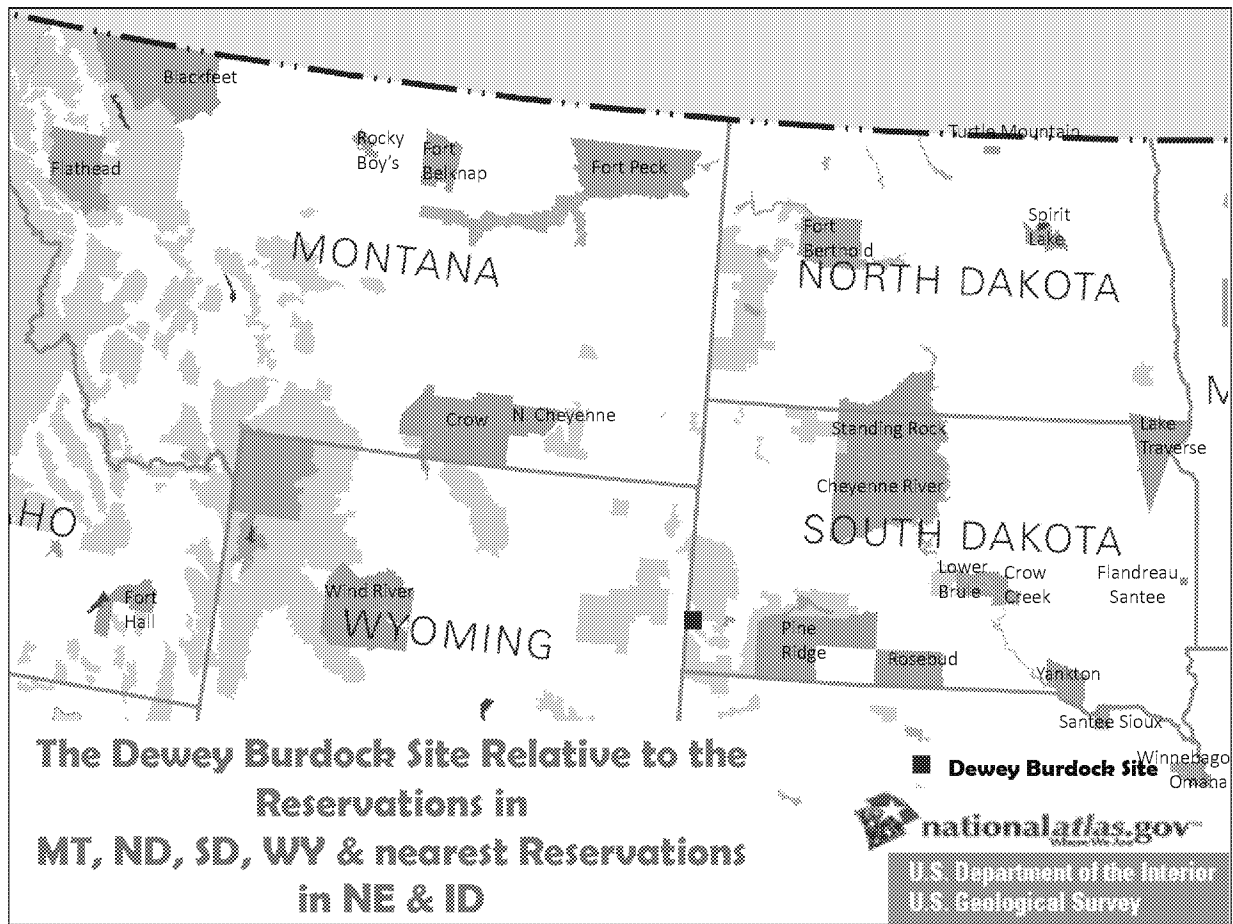
Dewey-Burdock Location Map



The Dewey Burdock site is located in the SW corner of Custer County and the NW corner of Fall River County on the Wyoming/South Dakota border. In the southern Black Hills. Point out Cheyenne River located to the south of the proposed permit area, Beaver Creek is a perennial stream flows through the permit area & is a tributary to the Cheyenne River.



Area photo Black Hills. Point out Red Race Track. Site is just on edge of highland rim around Red Rack Track

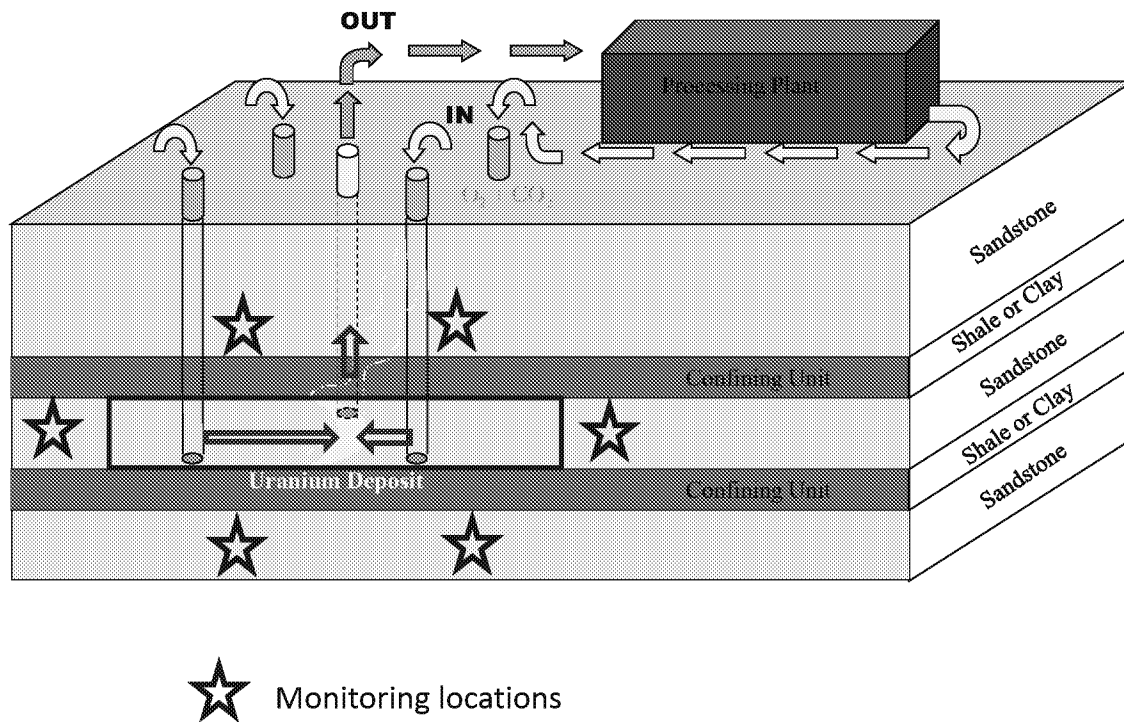


The Dewey Burdock site relative to the Reservations in MT, ND, SD, WY & nearest reservations in NE & ID

**The EPA Region 8 UIC Program
Has Received
Permit Applications
for Two Types of Injection Wells**

1. A Class III Permit Application for the injection of lixiviant to mobilize uranium in the ore bodies.
2. A Class V Permit Application for the disposal of treated ISR waste fluids into deep wells.

Uranium In-Situ Recovery Process



Typical five-spot pattern. In three dimensions, the wells follow the uranium deposit. Stars represent monitoring wells where we do not want to see any change in water quality.

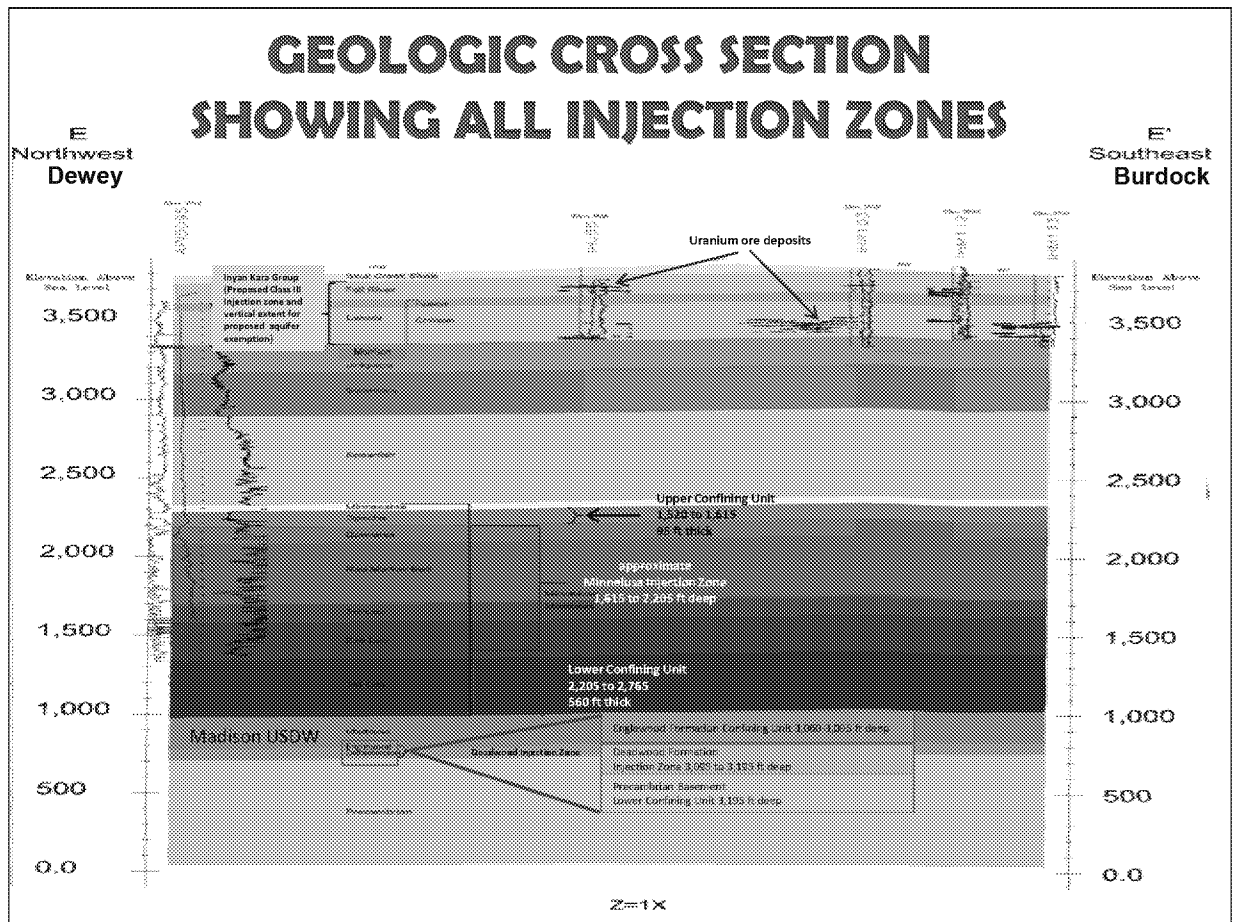


Figure 4. Stratigraphic Column at the Dewey Burdock Site Showing Proposed Injection Zones.
Enclosure to invitation letter

EPA Dewey-Burdock Permit Process

▪ EPA's Role

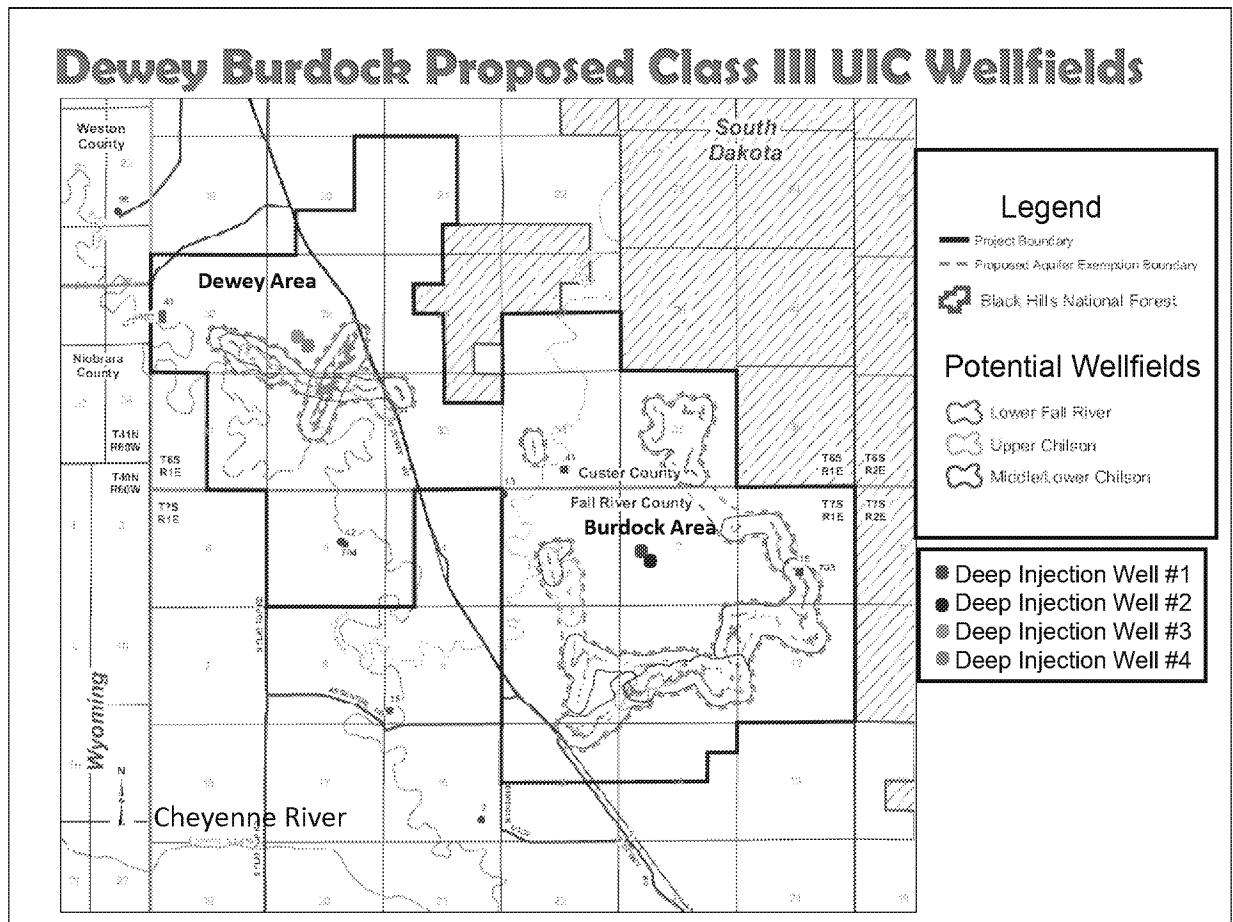
- Underground Injection Control (UIC) Program & Regulatory Mission
- UIC Permits
- Aquifer Exemption

▪ EPA Outreach

- Public Hearings in SD
- Additional Tribal Community Outreach
- Continuing Tribal Consultation

▪ UIC Permitting Process

- Technical Analysis
- Tribal Consultation
- Draft Permits
- Public Participation Process



Point out
SD WY Border
Custer and Fall River Counties
Dewey Area & Burdock Area
4 proposed wellfields in Dewey Area & 10 proposed wellfields in the Burdock Area.

Opportunities for Tribal Participation

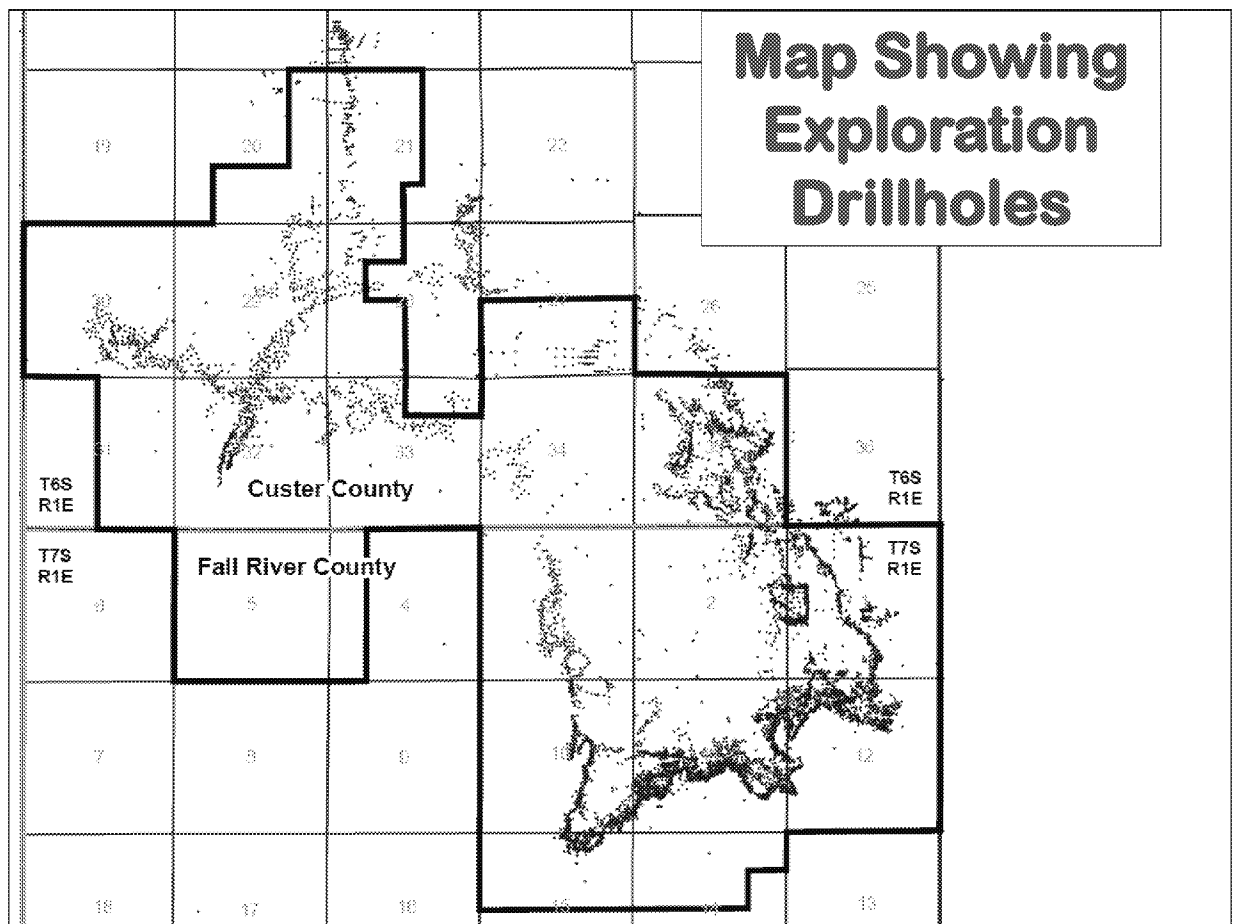
Informal and Formal Government-to-Government Consultation

- Informal Opportunities:
 - THPO Conference – September 10, 2015, Bismarck, ND
 - Meetings with Nebraska Tribes – October 28, 2015
 - Meetings with Oklahoma Tribes – November, 2015
 - Conference Calls – TBA
- Formal Opportunities:
 - Tribes will receive a formal consultation invitation.
 - Tribe may respond and request formal consultation.
- Review and comment on any proposed permit and aquifer exemption decisions.
- Attend Public Hearings.
- Request additional informational web conferences.
- Request additional informal and formal consultation.

Questions

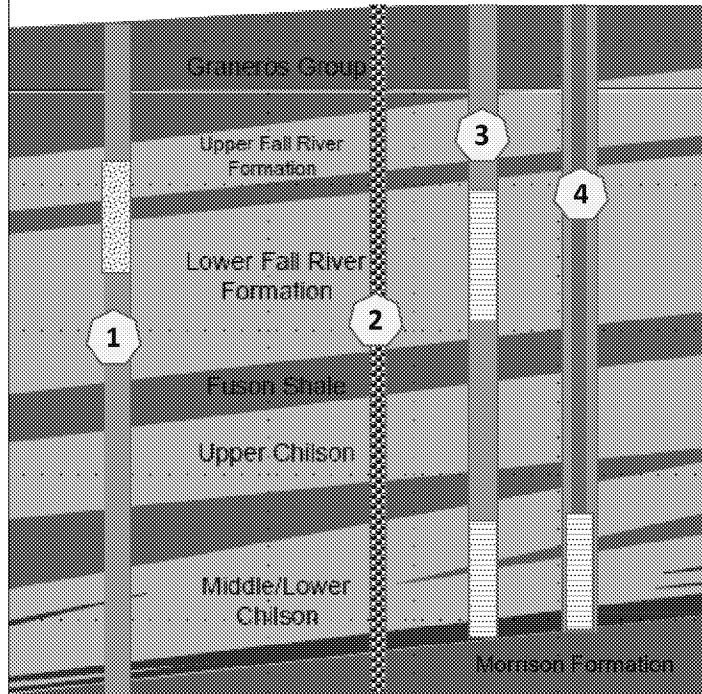
Contact information:

Valois Shea
shea.valois@epa.gov
303-312-6726



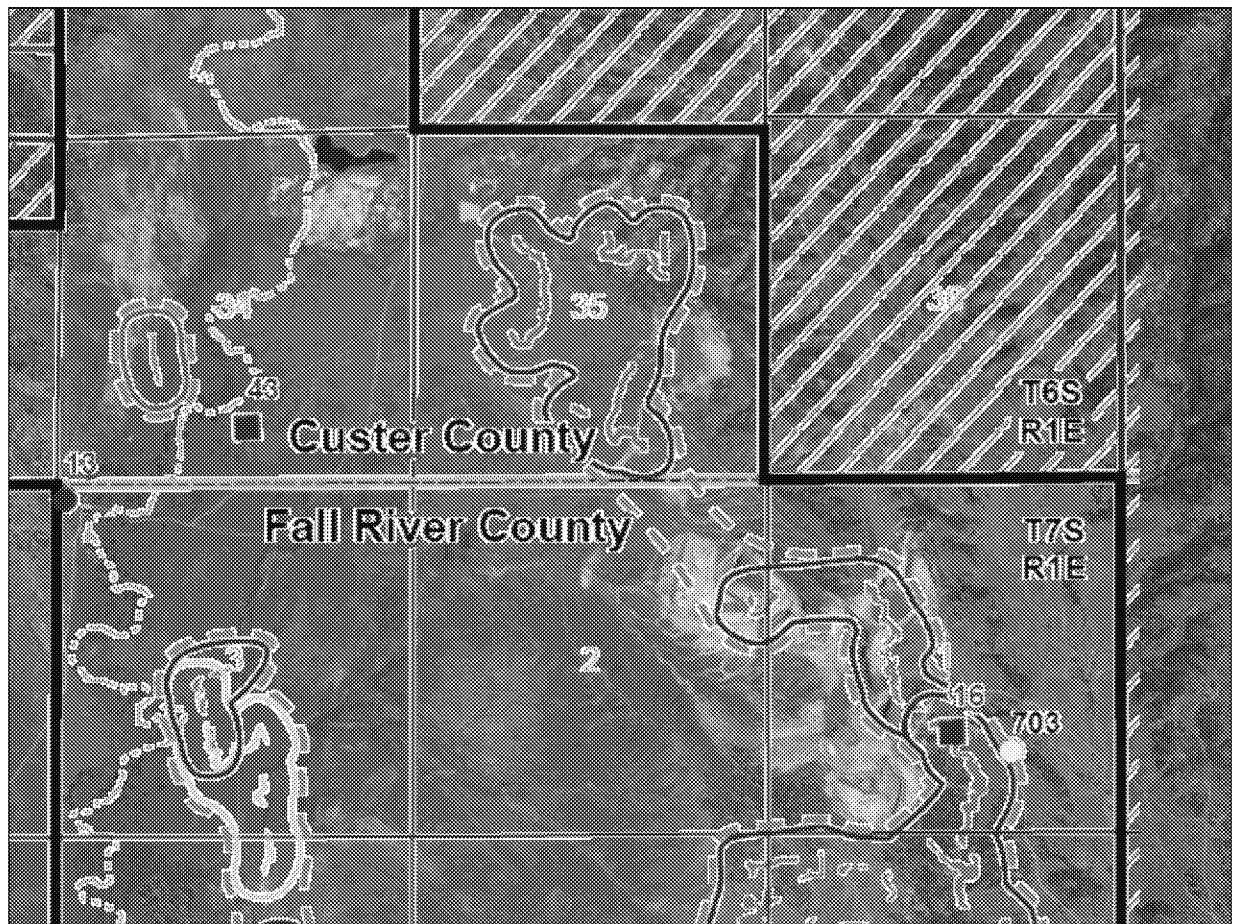
5932 drillholes 109 Powertech drilled

Examples of Breaches in Confining Zones



1. An improperly plugged oil & gas exploration well
2. An improperly plugged exploration drill hole
3. The TVA well screen in the aquifers above and below Fuson confining zone and open across the confining zone.
4. A private well with no cement behind the casing

Mention aquifers, confining zones
Aquifer water level above ground in part of the area



Abandoned mines. Open Pits with wellfields.



Abandoned mines. Point out tailings and pits containing water.

The EPA has done a preliminary assessment of these mine and determined that additional sampling is needed. We plan to do sampling this fall of the upgradient and downgradient areas. We haven't gotten permission to access the mines themselves. Sampling results will show if there has been a release of contaminants & give us data to go back and obtain site access.

UIC Regulations

- UIC regulations require the permittee to conduct considerable testing to provide EPA hydrogeological and other data before any injection wells are authorized to operate.
- The data must demonstrate vertical confinement to prevent movement of fluids out of the injection zone so that no USDWs are contaminated.
- The data must also demonstrate that it is possible to contain injection zone fluids horizontally to prevent contaminant migration into USDWs.

UIC Regulations

- UIC regulations require protection of USDWs around the AE area through extensive monitoring.
- UIC regulations require that no ISR process contaminants cross the aquifer exemption boundary during or after ISR operations.

UIC Regulations

- UIC regulations authorize enforcement action when UIC regulations and/or permit conditions are violated.
- Enforcement actions can include requirements for groundwater remediation activities if appropriate.